CLAIMS

1. A detector device comprising at least a field-distortor, responsive to an input signal, for influencing at least one characteristic of a first electro-magnetic signal; and a mixer for combining at least the influenced first electro-magnetic signal and a second signal to produce a combined signal having a characteristic determined by the input signal.

2. A detector device as claimed in claim 1, in which the field-distortor is operable to change the phase of the first electro-magnetic signal.

3. A detector device as claimed in either of claims 1 and 2, in which the field-distortor comprises a semi-conductor device disposed adjacent to a first conductor for carrying the first electro-magnetic signal.

4. A detector device as claimed in claim 3, in which the field-distortor is a semi-conductor device, preferably, a diode.

5. A detector device as claimed in any preceding claim, further comprising a signal generator for generating the input signal.

6. A detector device as claimed in any preceding claim, further comprising a transceiver for transmitting and receiving electro-magnetic signals.

7. A detector device as claimed in claim 6, in which the transceiver comprises at least one of a transmit

antenna and a receive antenna for transmitting an electro-magnetic signal and receiving a received signal respectively; the received signal being derived from the transmitted electro-magnetic signal.

8. A detector device as claimed in claim 7, in which the first electro-magnetic signal is derived from the received signal.

9. A detector device as claimed in claim 7, in which the first electro-magnetic signal is derived from the transmitted signal.

10. A detector device as claimed in any of claims 7 to 9, in which the second signal is derived from the received signal.

11. A detector device as claimed in any of claims 7 to 9, in which the second signal is derived from an oscillator for generating the transmit signal.

12. A detector device as claimed in any preceding claim, further comprising a signal analyser for monitoring the characteristic of the combined signal to determine the correct operation or otherwise of at least one element of the detector device.

13. A detector device as claimed in claim 12, in which the at least one element is at least one of a mixer, transmitter, oscillator and receive portion.

14. A detector device as claimed in any preceding claim, in which the field-distortor does not radiate an electro-magnetic field in response to the input

signal.

15. A detector device as claimed in any of claims 1 to 13, in which the field-distortor is arranged to radiate an electro-magnetic field in response to the input signal.

16. A detector device as claimed in any preceding claim, in which the field-distortor is spaced apart from the conductor without any physical connection therebetween.

17. A detector device substantially as described herein with reference to and/or as illustrated in the accompanying drawings.

18. A motion detection system comprising a detector device as claimed in any preceding claim.

19. A method of operating a detector device comprising at least one circuit element and a conductor bearing a first electro-magnetic signal; the circuit element being disposed adjacent to the conductor; the method comprising the steps of applying a signal to the circuit element to vary the electrical or electro-magnetic characteristics of the circuit element and thereby influence at least one characteristic of the first electro-magnetic signal; and producing an output signal indicative of the degree of influence exerted on the first electro-magnetic signal.

20. A method as claimed in claim 19, in which the motion detection device is a device as claimed in any of claims 1 to 17.

21. A method of operating a motion detection device substantially as described herein with reference to and/or as illustrated in the accompanying drawings.